Claims

[c1] 1. A cooling fan motor comprising:
a rotor that includes a magnet;
an impeller blade unit that is fixed to the rotor;
a stator that is fixed to so as to face the rotor magnet;
a frame that retains the stator and forms an outer frame of the fan motor; and
a guard plate that covers an outer surface of the frame and is fixed to or formed integrally with the frame,
wherein the guard plate is provided with a mesh grid formed by ribs extending in at least two directions, intersections of the ribs are fixed to each other, each of the ribs has at least one inclined side of a cross section that is perpendicular to the direction in which the rib extends, the inclined side is substantially parallel to the direction of an airflow that is generated at the position of the rib due to the rotation of the impeller blade unit of the fan motor or is inclined in the direction substantially along the airflow.

[c2] 2. The cooling fan motor according to claim 1, wherein each cell of the mesh grid formed by ribs extending in at least two directions of the guard plate of the fan motor is

small enough so that at least a human finger cannot enter.

[c3] 3. The cooling fan motor according to claim 1, wherein the guard plate is formed by a plurality of rib groups extending in two directions that are substantially perpendicular to each other.

[c4] 4. The cooling fan motor according to claim 1, wherein the guard plate is formed by a plurality of rib groups that are arranged substantially like concentric circles having a center point according to a rotation axis of the fan motor and a plurality of ribs that are substantially perpendicular to the concentric circles and extend radially from the rotation axis.

[c5] 5. The cooling fan motor according to claim 1, wherein a shape of the cross section of the rib of the guard plate is a right triangle, and the inclined side thereof is substantially parallel to the direction of an airflow that is generated at the position of the rib due to the rotation of the fan motor or is inclined in the direction substantially along the airflow.

[c6] 6. The cooling fan motor according to claim 1, wherein a shape of the cross section of the rib of the guard plate is a rectangle, and two long sides of the rectangle are both

parallel to the direction of an airflow that is generated at the position of the rib due to the rotation of the fan motor or is inclined in the direction substantially along the airflow.

[c7] 7. A case of an electronic or electric device having a cooling fan motor that includes a rotor having a magnet, an impeller blade unit that is fixed to the rotor, a stator that is fixed to at a location so as to face the rotor magnet, and includes a frame that retains the stator and forms an outer frame of the fan motor, the case comprising:
a guard plate that covers the outer frame of the cooling fan motor and is fixed to or formed integrally with the case, wherein the guard plate is provided with a mesh grid formed by ribs extending in at least two directions, intersections of the ribs are fixed to each other, each of the ribs has at least one inclined side of a cross section that is perpendicular to the direction in which the rib extends, the inclined side is substantially parallel to the direction of an airflow that is generated at the position of the rib due to the rotation of the impeller blade unit of the fan motor or is inclined in the direction substantially along the airflow.

[c8] 8. The case of an electronic or electric device according to claim 7, wherein each cell of the mesh grid formed by

ribs extending in at least two directions of the guard plate of the fan motor is small enough so that at least a human finger cannot enter.

[c9] 9. The case of an electronic or electric device according to claim 7, wherein the guard plate is formed by a plurality of rib groups extending in two directions that are substantially perpendicular to each other.

[c10] 10. The case of an electronic or electric device according to claim 7, wherein the guard plate is formed by a plurality of rib groups that are arranged substantially like concentric circles having a center point according to a rotation axis of the fan motor and a plurality of ribs that are substantially perpendicular to the concentric circles and extend radially from the rotation axis.

[c11] 11. The case of an electronic or electric device according to claim 7, wherein a shape of the cross section of the rib of the guard plate is a right triangle, and the inclined side thereof is substantially parallel to the direction of an airflow that is generated at the position of the rib due to the rotation of the fan motor or is inclined in the direction substantially along the airflow.

[c12] 12. The case of an electronic or electric device according to claim 7, wherein a shape of the cross section of the

rib of the guard plate is a rectangle, and two long sides of the rectangle are both parallel to the direction of an airflow that is generated at the position of the rib due to the rotation of the fan motor or is inclined in the direction substantially along the airflow.

[c13] 13. An electric device that includes a case and a cooling fan motor disposed at a predetermined position in the case,

the cooling fan motor comprising a rotor that includes a magnet, an impeller blade unit that is fixed to the rotor, a stator that is fixed to so as to face the rotor magnet and a frame that retains the stator and forms an outer frame of the fan motor,

the case comprising a guard plate that covers the outer frame of the cooling fan motor and is fixed to or formed integrally with the case, wherein the guard plate is provided with a mesh grid formed by ribs extending in at least two directions, intersections of the ribs are fixed to each other, each of the ribs has at least one inclined side of a cross section that is perpendicular to the direction in which the rib extends, the inclined side is substantially parallel to the direction of an airflow that is generated at the position of the rib due to the rotation of the impeller blade unit of the fan motor or is inclined in the direction along the airflow.